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(54) Title: HIGH-POWER-OPTICAL-AMPLIFIER USING A NUMBER OF SPACED, THIN SLABS

(57) Abstract: The high-power-optical-amplifier of the present invention uses a number of spaced, thin slabs (e.g., disc-shaped doped-slabs that are stacked, with a space between discs), aligned to give an amplifier both with a high active cross-section and a very high surface area to volume ratio. More specifically, the present invention provides several methods that include the steps of aligning at least two or four slabs having a thickness dimension of less than one centimeter, substantially parallel to, and spaced from adjacent slabs, wherein the slab surfaces are rendered essentially non-reflective, optically pumping the slabs and passing an input beam through the surfaces wherein the beam is optically amplified in the slabs, and wherein the input beam is of an eye-safe wavelength.